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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/657,505	09/08/2000	Knut Beneke	4175-0101P	3079

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EXAMINER

LU, TOM Y

ART UNIT PAPER NUMBER

2621

DATE MAILED: 03/15/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/657,505

Applicant(s)

BENEKE, KNUT

Examiner

Tom Y Lu

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The amendment and written response filed on December 23, 2003 has been entered.
2. Claims 5-10 are added.
3. Claims 1-10 are pending.

Response to Arguments

4. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

- a. With regard to Claim 1, the examiner in the office action dated, 10/03/2003, suggested that the term of "absorption attribute" was too broad. The reason for such suggestion is applicant claims "assigning specific colors to sub-objects based on *such absorption attribute*", and in the specification, colors are assigned based on the atomic numbers, page 6, lines 22-23. In addition, applicant also claims

“displaying a plurality of sub-objects having the same X-ray absorption attributes on a monitor” and the newly added limitation of “wherein the brightness level of at least one of the specific colors, which is assigned to a sub-object, is adjusted if the X-ray *absorption attribute* associated with the sub-object is substantially equal to the X-ray absorption attribute of another subject”, the latter “absorption attribute” can not possibly be atomic number, should be “absorption value” disclosed in the specification, page 6, lines 10-20. The applicant broadly uses the term of “absorption attribute”, which can mean atomic number, thickness, density and as well as absorption value mentioned in the specification, creates contradictions in the claim because one term can not represent two things.

- b. Claims 2-5 are rejected as being dependent upon Claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doenges (U.S. Patent No. 4,987,584) in view of Usami et al (U.S. Patent No. 5,422,739).

- a. Referring to Claim 1, Doenges discloses determining an X-ray absorption attribute (Doenges: column 2, line 44, material information signal C, which is atomic weight) of a plurality of the sub-objects (Doenges: column 2, line 17, articles 3); assigning a specific color to each of the plurality of sub-objects on the

basis of the X-ray absorption attribute (Doenges teaches the colors of the display picture is controlled by the material information signal C, column 1, lines 58-59. the colors are red, green and blue, column 2, line 65); adjusting a brightness level of one of the specific colors by adjusting each pixel thereof with a determined color proportion of at least one of red, green or blue (Doenges: column 2, line 64, the brightness-controllable color allocator table 9); displaying at least the plurality of sub-objects having the same X-ray absorption attributes on a monitor (column 2, lines 65-66). However, Doenges does not disclose the brightness adjustment takes into consideration the sensitivity of the human eye; and display at least the plurality of sub-objects having the same X-ray absorption attributes on a monitor, whereby adjustment of the brightness level of one of the specific colors causes the human eye to view at least the plurality of sub-objects as having equal brightness levels, wherein the brightness level of at least one of the specific colors, which is assigned to a sub-object, is adjusted if the X-ray absorption attribute associated with the sub-object is substantially equal to the X-ray absorption attribute of the another sub-object. Usami at column 5, lines 5-35, teaches due to the nature of color characteristics, for example, the color green is perceived to be much brighter by the human eye than the color blue, a matrix operation 9 as shown in figure 5 is performed to correct the brightness level of the colors when they are displayed. At the time the invention was made, a person of ordinary skill in the art would have been motivated to do this because Doenges already teaches using a brightness controllable color allocator table to control the color display brightness. By

adapting Usami's matrix operation technique as shown in figure 5, the colors of articles in Doenges displayed on an output means, such a color monitor, will have equal brightness levels to human eyes.

- b. Referring to Claim 2, Doenges discloses wherein color proportions are stored in support tables of a computer (the brightness-controllable color allocator table 9, column 2, line 64).
- c. Referring to Claim 3, Doenges discloses wherein intensity of the specific colors is increased or decreased for the brightness adjustment (by increasing and decreasing the brightness of colors, the color intensity inherently changed accordingly).
- d. Referring to Claim 4, Doenges discloses determining one average atomic number of each of the plurality of sub-objects from two different energies (column 3, lines 1-5); and assigning the specific colors to the at least plurality of sub-objects based upon their respective average atomic number (column 1, lines 58-59).
- e. With regard to Claim 5, see explanation in Claim 1.
- f. Referring to Claim 6, Doenges discloses an X-ray beam source (X-ray source 1, Doenges: column 2, line 14) for producing an X-ray beam (column 2, line 16) that is transmitted through an object, the object containing a plurality of sub-objects (column 2, lines 15-16); a detector for detecting the X-ray beam (detector 4, column 2, line 29); an evaluation unit for evaluating the detected X-ray beam and determining absorption values (f_2 and f_3 , column 3, line 30 are the claimed absorption values) and an average atomic number (f_1 is the claimed atomic

number) for each of the sub-objects being contained in the object, the evaluation unit further assigning a specific color to each of the sub-objects on the basis of the average atomic number and assigning a brightness level to each of the sub-objects on the basis of the absorption values (column 3, lines 54-65, the color allocator table 9 does the claimed "evaluation"); and a display unit for displaying each of the sub-objects and their associated specific color and brightness level (color monitor 11b, column 2, line 66). Usami teaches wherein the brightness level of a sub-object is adjusted if the absorption value of the sub-object is substantially equal to the absorption value of another sub-object (see explanation in Claim 1).

- g. Referring to Claim 7, Doenges discloses wherein the absorption values include an absorption value in a high-energy range and an absorption value in a low-energy range of the X-ray spectrum (column 3, lines 1-5).
- h. With regard to Claim 8, see explanation in Claim 5.
- i. With regard to Claim 9, all limitations are addressed in Claim 6.
- j. With regard to Claim 10, see explanation in Claim 5.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Y Lu whose telephone number is (703) 306-4057. The examiner can normally be reached on 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Y. Lu



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